

## AMENDMENTS TO THE CLAIMS

1-159. (Canceled)

160. (Currently Amended) An array comprising a surface suitable for culturing cells, the surface having at least 96 a plurality of locations, wherein each location comprises (i) eukaryotic cells and (ii) a feature comprising one or more defined nucleic acid molecules in a discrete location, wherein the eukaryotic cells are on top of the nucleic acids, and the nucleic acid molecules are so affixed to the surface, and the eukaryotic cells at said location are arranged with respect to the surface such that the cells are capable of becoming transfected with the one or more defined nucleic acid molecules when the array is maintained for a suitable period of time to form an array comprising transfected eukaryotic cells growing in culture on the surface.

161. (Previously Presented) The array of claim 160, wherein the one or more defined nucleic acid molecules are non-viral.

162. (Previously Presented) The array of claim 160, wherein, in at least one feature, the one or more defined nucleic acid molecules are contained in a vector.

163. (Previously Presented) The array of claim 160, wherein, in at least one feature, the one or more defined nucleic acid molecules are contained in a plasmid.

164. (Previously Presented) The array of claim 160, wherein, in at least one location, the one or more defined nucleic acid molecules encode polypeptides.

165. (Previously Presented) The array of claim 160, wherein the cells are disposed on the surface at a density of  $0.3 \times 10^5/\text{cm}^2$  to  $3.0 \times 10^5/\text{cm}^2$ .

166. (Previously Presented) The array of claim 160, wherein, in at least one feature, the one or more defined nucleic acid molecules are DNA.

167. (Previously Presented) The array of claim 160, wherein, in at least one feature, the nucleic acid molecules comprise at least two different nucleic acid molecules.

168. (Previously Presented) The array of claim 160, wherein the features are produced by using a microarrayer to deposit the nucleic acid molecules on the surface.

169. (Previously Presented) The array of claim 160, wherein the features comprise RNA.

170. (Previously Presented) The array of claim 160, wherein the features comprise nucleic acid molecules that interfere with the function of an endogenous gene when introduced into the eukaryotic cells.

171. (Previously Presented) The array of claim 160, wherein the nucleic acid molecules are capable of inducing post-transcriptional gene silencing when present in the eukaryotic cells.

172. (Previously Presented) The array of claim 160, wherein the nucleic acid containing features are not sequestered in individual wells.

173. (Previously Presented) The array of claim 160, wherein the array is formed by adding cells and a transfection reagent to a surface comprising a plurality of features each of which comprises one or more defined nucleic acid molecules affixed to the surface in a discrete, defined location.

174. (Previously Presented) The array of claim 160, wherein the surface comprises up to 10,000-15,000 features.

175. (Previously Presented) The array of claim 160, wherein the features comprise a carrier.

176. (Previously Presented) The array of claim 160, wherein, in at least one feature, the one or more defined nucleic acid molecules encode a double-stranded RNA molecule.

177. (Previously Presented) The array of claim 160, wherein, in at least one feature, the one or more defined nucleic acid molecules has a modified base or backbone.

178-236. (Canceled)

237. (Previously Presented) The array of claim 160, wherein at least 10 different nucleic acid sequences are present on said surface at discrete locations.

238. (Previously Presented) The array of claim 237, wherein at least 100 different nucleic acid sequences are present on said surface at discrete locations.

239. (Previously Presented) The array of claim 238, wherein at least 1000 different nucleic acid sequences are present on said surface at discrete locations.

240. (Previously Presented) The array claim 160, said array comprising features comprising two or more different defined nucleic acid molecules.

241. (Previously Presented) The array of claim 160, wherein the features comprise a protein.

242. (Previously Presented) The array of claim 160, wherein the features comprise a lipid.

243. (Previously Presented) The array of claim 160, wherein the features comprise fibronectin.

244. (Previously Presented) The array of claim 160, wherein the surface comprises a cationic moiety.

245. (Previously Presented) The array of claim 160, wherein the surface comprises a capture moiety.

246. (Previously Presented) The array of claim 160, further comprising cell culture medium.

247. (New) The array of claim 160, wherein the array was made by a process comprising plating dispersed eukaryotic cells onto a surface having nucleic acids affixed thereto in discrete locations.

248. (New) The array of claim 247, wherein, in at least one feature, the one or more defined nucleic acid molecules are contained in a plasmid.

249. (New) The array of claim 247, wherein the features comprise nucleic acid molecules that interfere with the function of an endogenous gene when introduced into the eukaryotic cells.

250. (New) The array of claim 247, wherein the nucleic acid molecules are capable of inducing post-transcriptional gene silencing when present in the eukaryotic cells.

251. (New) The array of claim 247, wherein the features comprise a carrier.

252. (New) The array of claim 247, wherein, in at least one feature, the one or more defined nucleic acid molecules encode a double-stranded RNA molecule.

253. (New) An array comprising a surface having a plurality of locations, wherein each location comprises (i) eukaryotic cells that are not present in tissue and (ii) a feature comprising one or more defined nucleic acid molecules in a discrete location, wherein the eukaryotic cells are on top of the nucleic acids and the nucleic acid molecules are so affixed to the surface that the cells are capable of becoming transfected with the one or more defined nucleic acid molecules when the array is maintained for a suitable period of time.

254. (New) The array of claim 253, wherein, in at least one feature, the one or more defined nucleic acid molecules are contained in a plasmid.

255. (New) The array of claim 253, wherein the features comprise nucleic acid molecules that interfere with the function of an endogenous gene when introduced into the eukaryotic cells.

256. (New) The array of claim 253, wherein the nucleic acid molecules are capable of inducing post-transcriptional gene silencing when present in the eukaryotic cells.

257. (New) The array of claim 253, wherein the features comprise a carrier.

258. (New) The array of claim 253, wherein, in at least one feature, the one or more defined nucleic acid molecules encode a double-stranded RNA molecule.

259. (New) An array comprising a surface having a plurality of locations, wherein each location comprises (i) eukaryotic cells that were in a dispersed state prior to forming the array and (ii) a feature comprising one or more defined nucleic acid molecules in a discrete location, wherein the eukaryotic cells are on top of the nucleic acids and the nucleic acid molecules are so affixed to the surface that the cells are capable of becoming transfected with the one or more defined nucleic acid molecules when the array is maintained for a suitable period of time.

260. (New) The array of claim 259, wherein, in at least one feature, the one or more defined nucleic acid molecules are contained in a plasmid.

261. (New) The array of claim 259, wherein the features comprise nucleic acid molecules that interfere with the function of an endogenous gene when introduced into the eukaryotic cells.

262. (New) The array of claim 259, wherein the nucleic acid molecules are capable of inducing post-transcriptional gene silencing when present in the eukaryotic cells.

263. (New) The array of claim 259, wherein the features comprise a carrier.

264. (New) The array of claim 259, wherein, in at least one feature, the one or more defined nucleic acid molecules encode a double-stranded RNA molecule.

265. (New) An array comprising a surface having a plurality of locations, wherein each location comprises (i) eukaryotic cells and (ii) a feature comprising one or more defined nucleic acid molecules in a discrete location, wherein the eukaryotic cells are on top of the nucleic acids and the nucleic acid molecules are so affixed to the surface that the cells are capable of becoming transfected with the one or more defined nucleic acid

molecules when the array is maintained for a suitable period of time, wherein the array was made by a process comprising plating dispersed eukaryotic cells onto a surface having nucleic acids affixed thereto in discrete locations.

266. (New) The array of claim 265, wherein, in at least one feature, the one or more defined nucleic acid molecules are contained in a plasmid.

267. (New) The array of claim 265, wherein the features comprise nucleic acid molecules that interfere with the function of an endogenous gene when introduced into the eukaryotic cells.

268. (New) The array of claim 265, wherein the nucleic acid molecules are capable of inducing post-transcriptional gene silencing when present in the eukaryotic cells.

269. (New) The array of claim 265, wherein the features comprise a carrier.

270. (New) The array of claim 265, wherein, in at least one feature, the one or more defined nucleic acid molecules encode a double-stranded RNA molecule.

271. (New) An array comprising a surface having a plurality of locations, wherein each location comprises (i) eukaryotic cells and (ii) a feature comprising one or more defined nucleic acid molecules in a discrete location, wherein the eukaryotic cells are on top of the nucleic acids, and the nucleic acid molecules are so affixed to the surface that the cells are capable of becoming transfected with the one or more defined nucleic acid molecules when the array is maintained for a suitable period of time, and the location on which the nucleic acids are located is suitable for maintaining the eukaryotic cells in culture for at one cell cycle.